ENDOTRACHEAL INTUBATION: ADULT

INDICATIONS:

Endotracheal intubation may be performed in medical patients and trauma victims in the following situations:

- Apneic adult (age greater than 12 years or weight greater than 40 kg) without gag reflex; e.g., cardiac arrest.
- Respiratory arrest.
- Respiratory depression with an absent gag reflex.
- Unresponsive with respiratory depression.

CONTRAINDICATIONS:

- Obvious signs of death.
- Do-Not-Resuscitate.
- Known narcotic OD (if ALS < 10 minutes ETA).

COMMENTS:

- Intubation may be attempted a maximum of three times.
- The patient should be ventilated between each attempt.
- Each attempt may take no longer than 30 seconds.
- The EDD must be used to verify tube placement.

EQUIPMENT:

- Laryngoscope with adult size straight and curved metal blades (sizes #3 & #4).
- Endotracheal (ET) tubes with 10 ml cuff and 15 mm adaptor (sizes 6.5 to 8.0).
- 10 ml syringe.
- Stylet.
- Lubricant (water soluble).
- ET tube holder.
- Magill forceps.
- Approved suction device.
- Tonsil tip suction catheter & French suction catheters (#14 & #16).
- Sterile water or saline.
- Oxygen.
- Bag-valve mask. 40 L/min resuscitator optional.
- Esophageal intubation detector device (EDD)/syringe.

PREPARATION OF EQUIPMENT:

- Assemble all equipment.
- Inflate the cuff on the ET tube with 10 ml of air to test for leaks. Deflate cuff.
- Lubricate the ET tube.
- Insert the stylet into the ET tube.
  - The distal end of the stylet must be recessed at least 1 cm from the end of the ET tube.
- Bend the tube into a gentle curve.
- Test the laryngoscope light.

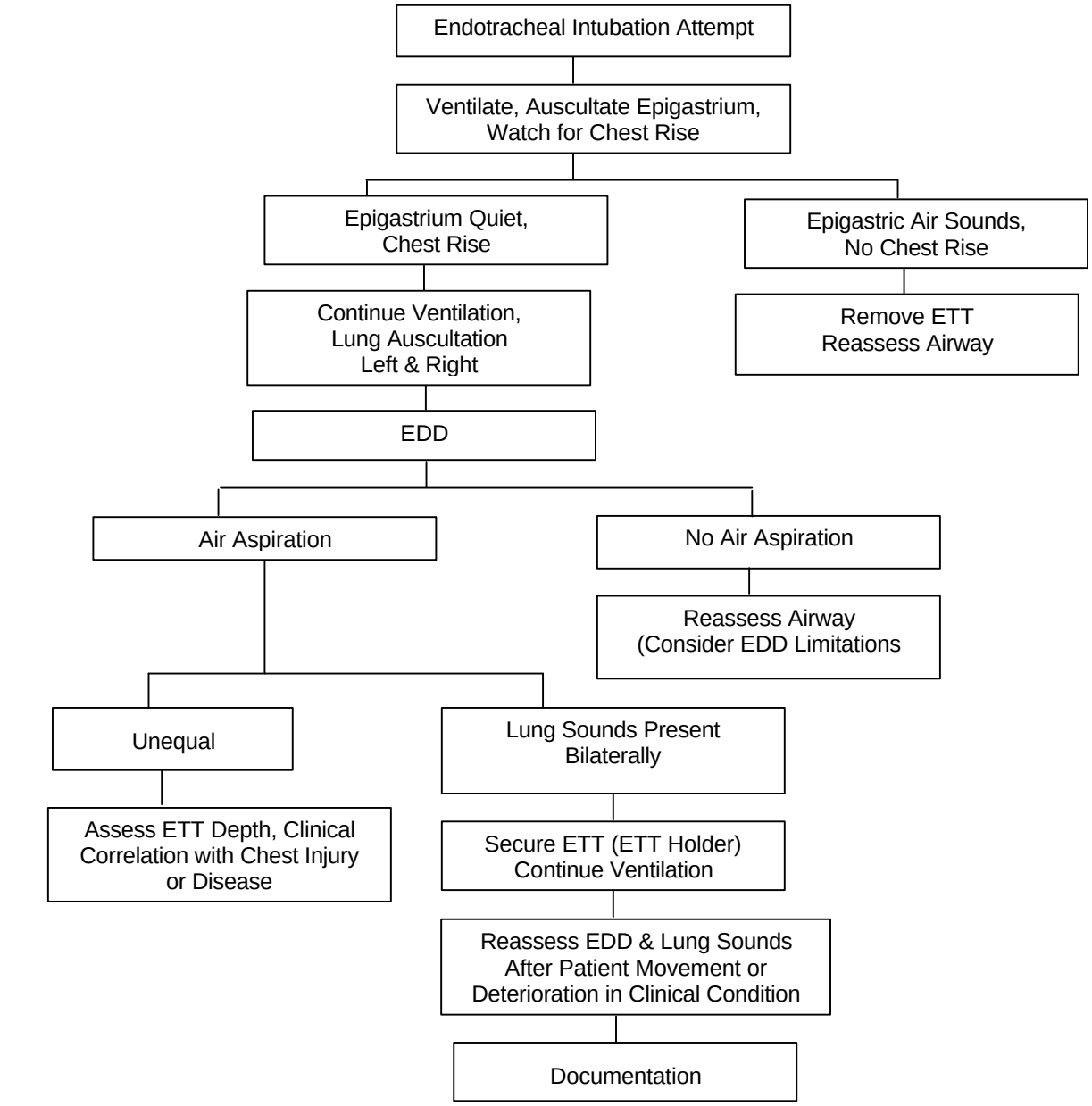
PREPARATION OF PATIENT:

- Remove or suction any foreign materials from patient's mouth.
- Ventilate the patient with 100% oxygen for a minimum of 60 seconds.
- Position the patient in the "sniffing" position with the neck flexed and the head extended.
- Traumatic arrest.
  - No apparent **C-spine** injuries: position the patient in the "sniffing" position with the neck flexed and the head extended.
  - Suspected **C-spine injury:** an assistant will provide in-line stabilization in the neutral position.
- Stop ventilations and compressions.

PROCEDURE:

- Suction the patient's mouth until clear.
- Visualize the vocal cords, using appropriate technique for selected laryngoscope blade.
- Repeat suction as necessary; remove foreign bodies with Magill forceps.
- Maintain visualization of the vocal cords and insert the tube into the trachea until the cuff is situated just below the vocal cords.
  - Cricoid pressure may assist with visualization of the cords. It may also assist with the control of emesis by occluding the esophagus.
- Remove the laryngoscope and stylet.
- Hold the tube in the correct position (approximately 22 cm mark at the teeth) by grasping it firmly in one hand. The tube is to be secured in this position.
- Inflate the cuff with 10 ml air.

EVALUATE TUBE PLACEMENT:



VENTILATE THE PATIENT:

- Ventilate the patient with 100% 0_2 by means of a bag-valve breathing device or 40 L/min resuscitator.
- Observe for bilateral rise and fall of the chest.
- Auscultate the epigastric area for absence of abdominal sounds, and the lungs bilaterally for breath sounds.

SECURE AIRWAY:

- Insert an oropharyngeal airway or bite block if required.
- Secure the tube in place at the appropriate level (about the 22 cm mark at the teeth) by use of an ET tube holder.
- Consider C-collar or other means to immobilize head to minimize movement.
- Reassess the tube position frequently during the call, each time the patient is moved or the tube is manipulated.
  - Observe continuously for bilateral rise and fall of the chest.
  - Auscultate for ventilation sounds over the lungs bilaterally and over the stomach.
  - Check the centimeter marking at the level of the incisors and compare with initial marking.
  - Test placement of tube with EDD.

DOCUMENTATION:

Documentation shall include:

- Presence of bilateral breath sounds and absence of abdominal sounds.
- Verification that esophageal intubation detector device indicated tracheal position.
- Size of ET tube.
- Certification # of medic inserting tube.
- Time of insertion.
- Number of attempts required.
- Depth tube inserted (cm mark at teeth).
- Tube secured using ET tube holder.
- Use of collar or other means to immobilize head to minimize movement.
- Reassessment of bilateral breath sounds, absence of abdominal sounds, and tube insertion depth each time patient is moved.
- Name of PRC physician verifying tube position.
- Any procedural problems or complications.

EXTUBATION:

- **Indications:**
  - Failure to ventilate, including:
    - Failure of the chest to rise.
    - Absent breath sounds bilaterally or abdominal distention without breath sounds.
    - Esophageal intubation.
    - Malfunctioning equipment (i.e.: cuff leak).
  - Patient awakening and/or gagging on tube (BH order).
- **Procedure:**
  - Suction oropharynx.
  - Oxygenate the patient.
  - Turn the patient's head or log roll entire body to the side.
  - Be prepared to suction; anticipate emesis.
  - Deflate the cuff while suctioning through ET tube.
  - Withdraw the tube on exhalation.
  - Monitor patient's respiratory status and intervene as necessary.
  - Provide supplemental oxygen.

PROBLEM SOLVING:

- **Mainstem Bronchus Intubation:**
  - Breath sounds decreased or absent on the one side (usually left).
    - Withdraw the tube 1 cm.
    - Auscultate for bilateral breath sounds.
    - Repeat until breath sounds are equal bilaterally or until the 22 cm marking on the tube is at the level of the incisors.
    - Secure the tube.
- **Esophageal Intubation:**
  - Bilaterally diminished or absent breath sounds, failure of the chest to rise and fall, abdominal rise and fall with ventilation, abdominal distention, or epigastric sounds with each ventilation, strongly suggest esophageal intubation.

    NOTE: Any or all of these signs may be absent, especially in the frail and elderly patient.

    - Extubate immediately and ventilate with 100% oxygen.
    - Consider re-intubation with either ET tube or combitube.
- **Dislodgement**
  - Diminished or absent breath sounds, absence of chest excursion.
    - Extubate immediately and ventilate with 100% oxygen.
    - Consider c-collar or other means to immobilize head to minimize movement.
    - Properly secure the tube with an ET tube holder to prevent dislodgement.
    - Disconnect the ventilation device whenever it is necessary to interrupt ventilations - i.e.: defibrillation, cardioversion, transfer of patient to gurney, ambulance, etc. to prevent dislodgement.
    - When moving the patient, manually secure ET tube.
- **Emesis:**
    - Suction.
    - Consider placement of a combitube for large amounts of passive regurgitation.

NOTES:

- **Major complications are life threatening and may be fatal. These include tube dislodgement and esophageal intubation.**